

WEST

Generate Collection

L6: Entry 1 of 2

File: USPT

Jul 17, 2001

DOCUMENT-IDENTIFIER: US 6263313 B1

TITLE: Method and apparatus to create encoded digital content

BSPR:

Other commercially available electronic distribution systems for digital content, such as real audio, A2B from AT&T, Liquid Audio Pro from Liquid Audio Pro Corp., City Music Network from Audio Soft and others offer transmission of digital data over secured and unsecured electronic networks. The use of secured electronic networks greatly reduces the requirement of digital content providers of distributing digital to a wide audience. The use of unsecured networks such as the Internet and Web allows the digital content to arrive to an end-user securely such as through the use of encryption. However, once the encrypted digital content is de-encrypted on the end-user's machine, the digital content is readily available to the end-user for unauthorized re-distribution. Therefore a need exists for a secure digital content electronic distribution system that provides protection of digital assets and ensures that the Content Provider(s)' rights are protected even after the digital content is delivered to consumers and businesses. A need thus exists for rights management to allow for secure delivery, licensing authorization, and control of the usage of digital assets.

DRPR:

FIG. 6 is a block diagram illustrating an overview of the Content Distribution and Licensing Control as it applies to the License Control Layer of FIG. 5.

DEPR:

Rights management in the Secure Digital Content Electronic Distribution System is implemented through a set of functions distributed among the operating components of the system. Its primary functions include: licensing authorization and control so that content is unlocked only by authorized intermediate or End-User(s) that have secured a license; and control and enforcement of content usage according to the conditions of purchase or license, such as permitted number of copies, number of plays, and the time interval or term the license may be valid. A secondary function of rights management is to enable a means to identify the origin of unauthorized copies of content to combat piracy.

DEPR:

Licensing authorization and control are implemented through the use of a Clearinghouse(s) entity and Secure Container (SC) technology. The Clearinghouse(s) provides licensing authorization by enabling intermediate or End-User(s) to unlock content after verification of a successful completion of a licensing transaction. Secure Containers are used to distribute encrypted content and information among the system components. A SC is a cryptographic carrier of information or content that uses encryption, digital signatures, and digital certificates to provide protection against unauthorized interception or modification of electronic information and content. It also allows for the verification of the authenticity and integrity of the Digital Content. The advantage of these rights management functions is that the electronic Digital Content distribution infrastructure does not have to be secure or trusted. Therefore allowing transmission over network infrastructures such as the Web and Internet. This is due to the fact that the Content is encrypted within Secure Containers and its storage and distribution are separate from the control of its unlocking and use. Only users who have decryption keys can unlock the encrypted Content, and the Clearinghouse(s) releases decryption keys only for authorized and appropriate usage requests. The Clearinghouse(s) will not clear bogus requests from unknown or unauthorized parties or requests that do not comply with the content's usage conditions as set by the content proprietors. In addition, if

the SC is tampered with during its transmission, the software in the Clearinghouse(s) determines that the Content in a SC is corrupted or falsified and repudiate the transaction.

DEPR:

License Control in the Secure Digital Content Electronic Distribution System 100 is based on the use of cryptography. This section introduces basic cryptography technologies of the present invention. The use of public key encryption, symmetric key encryption, digital signatures, digital watermarks and digital certificates is known.

DEPR:

FIG. 5 is a block diagram of the Rights Management Architecture of the Secure Digital Content Electronic Distribution System 100. Architecturally, four layers represent the Secure Digital Content Electronic Distribution System 100: the License Control Layer 501, the Content Identification Layer 503, Content Usage Control Layer 505, and the Content Formatting Layer 507. The overall functional objective of each layer and the individual key functions for each layer are described in this section. The functions in each of the layers are fairly independent of the functions in the other layers. Within broad limitations, functions in a layer can be substituted with similar functions without affecting the functionality of the other layers. Obviously, it is required that the output from one layer satisfies format and semantics acceptable to the adjacent layer.

DEPR:

The License Control Layer 501 ensures that:

DEPR:

The Content Usage Control Layer 505 permits the specification and enforcement of the conditions or restrictions imposed on the use of Content 113 use at the End-User Device(s) 109. The conditions may specify the number of plays allowed for the Content 113, whether or not a secondary copy of the Content 113 is allowed, the number of secondary copies, and whether or not the Content 113 may be copied to an external portable device. The Content Provider(s) 101 sets the allowable Usage Conditions 517 and transmits them to the Electronic Digital Content Store(s) 103 in a SC (see the License Control Layer 501 section). The Electronic Digital Content Store(s) 103 can add to or narrow the Usage Conditions 517 as long as it doesn't invalidate the original conditions set by the Content Provider(s) 101. The Electronic Digital Content Store(s) 103 then transmits all Store Usage Conditions 519 (in a SC) to the End-User Device(s) 109 and the Clearinghouse(s) 105. The Clearinghouse(s) 105 perform Usage Conditions Validation 521 before authorizing the Content 113 release to an End-User Device(s) 109.

DEPR:

As part of the Content Identification Layer 503, the Content Provider(s) 101 also uses a License Watermark 527 to embed data in the Content 113 such as to the content identifier, content owner and other information, such as publication date and geographic distribution region. This watermark is referred to here as the Copyright Watermark 529. Upon reception, the End-User Device(s) 109 watermarks the copy of the Content 113 with the content purchaser's name and the Transaction ID 535 (see the License Control Layer 501 section below), and with other information such as date of license and Usage Conditions 517. This watermark is referred to here as the license watermark. Any copy of Content 113, obtained in an authorized manner or not, and subject to audio processing that preserves the content quality, carries the copyright and license watermarks. The Content Identification Layer 503 deters piracy.

DEPR:

The License Control Layer 501 protects the Content 113 against unauthorized interception and ensures that the Content is only released on an individual basis to an End-User(s) that has properly licensed End-User Device(s) 109 and successfully completes a license purchase transaction with an authorized Electronic Digital Content Store(s) 103. The License Control Layer 501 protects the Content 113 by double Encryption 531. The Content 113 is encrypted using an encryption symmetric key generated by the Content Provider(s) 101, and the symmetric key is encrypted using the public key 621 of the Clearinghouse(s). Only the Clearinghouse(s) 105 can initially recover the symmetric key.

DEPR:

License control is designed with the Clearinghouse(s) 105 as the "trusted party". Before releasing permission for the License Request 537, (i.e. the Symmetric Key 623 for the Content 113 to an End-User Device(s) 109), the Clearinghouse(s) 105 verifies that the Transaction 541 and the License Authorization 543 are complete and authentic, that the Electronic Digital Content Store(s) 103 has authorization from the Secure Digital Content Electronic Distribution System 100 for the sale of electronic Content 113, and that the End-User(s) has a properly licensed application. Audit/Reporting 545 allows the generation of reports and the sharing of licensing transaction information with other authorized parties in the Secure Electronic Digital Content Distribution System 100.

DEPR:

License control is implemented through SC Processing 533. SC(s) are used to distribute encrypted Content 113 and information among the system operation components (more about the SC(s) detailed structure sections below). A SC is cryptographic carrier of information that uses cryptographic encryption, digital signatures and digital certificates to provide protection against unauthorized interception and modification of the electronic information or Content 113. It also allows for the authenticity verification of the electronic data.

DEPR:

License control requires that the Content Provider(s) 101, the Electronic Digital Content Store(s) 103, and the Clearinghouse(s) 105 have bona-fide cryptographic digital certificates from reputable Certificate Authorities that are used to authenticate those components. The End-User Device(s) 109 are not required to have digital certificates.

DEPR:

FIG. 6 is a block diagram illustrating an overview of the Content Distribution and Licensing Control as it applies to the License Control Layer of FIG. 5. The figure depicts the case in which the Electronic Digital Content Store(s) 103, End-User Device(s) 109 and the Clearinghouse(s) 105 are interconnected via the Internet, and unicast (point-to-point) transmission is used among those components. The communication between the Content Provider(s) 101 and the Electronic Digital Content Store(s) 103 could also be over the Internet or other network. It is assumed that the Content-purchase commercial transaction between the End-User Device(s) 109 and the Electronic Digital Content Store(s) 103 is based on standard Internet Web protocols. As part of the Web-based interaction, the End-User(s) makes the selection of the Content 113 to purchase, provides personal and financial information, and agrees to the conditions of purchase. The Electronic Digital Content Store(s) 103 could obtain payment authorization from an acquirer institution using a protocol such as SET.

DEPR:

Unlike source performed at the Content Provider(s) 101 and user watermarking performed at the End User Device(s) 109 may need to become an industry standard to be effective. These standards are still evolving. The technology is available to allow control information to be embedded in the music and updated a number of times. Until such time as the copy control standards are more stable, alternative methods of copy control have been provided in the Secure Digital Content Electronic Distribution System 100 so that it does not rely on the copy control watermark in order to provide rights management in the consumer device. Storage and play/record usage conditions security is implemented utilizing encrypted DC Library Collections 196 that are tied to the End User Device(s) 109 and protected via the Tamper Resistant Environment. Software hooks are in place to support copy control watermarking when standards have been adopted. Support exists today for watermarking AAC and other encoded audio streams at a variety of compression levels but this technology is still somewhat immature at this time to be put to use as a sole method of copy control.

DEPL:

4. License Control Layer 501

DEPL:

C. Content Distribution and Licensing Control

DEPV:

C. Content Distribution and Licensing Control

WEST

Help

Logout

Interrupt

Main Menu

Search Form

Posting Counts

Show S Numbers

Edit S Numbers

Preferences

Search Results -

Terms	Documents
16 and registration	1

Database:

US Patents Full-Text Database
 US Pre-Grant Publication Full-Text Database
 JPO Abstracts Database
 EPO Abstracts Database
 Derwent World Patents Index
 IBM Technical Disclosure Bulletins

Refine Search:

16 and registration

Clear

Search History

Today's Date: 7/30/2001

<u>DB Name</u>	<u>Query</u>	<u>Hit Count</u>	<u>Set Name</u>
USPT	16 and registration	1	<u>L11</u> considered all
USPT	16 and key	2	<u>L10</u> considered all
USPT	16 and password	0	<u>L9</u>
USPT	16 and number	2	<u>L8</u> considered all
USPT	16 and validation near5 number	0	<u>L7</u>
USPT	14 and (control\$3 near3 licens\$3)	2	<u>L6</u> considered all
USPT	14 and (contrl\$3 near3 licens\$3)	0	<u>L5</u>
USPT	(control\$4 near5 copy\$3 near5 software)	147	<u>L4</u> considered only abstract
USPT	(340/\$).ccls	47428	<u>L3</u>
USPT	(713/\$).ccls	9518	<u>L2</u>
USPT	(380/\$).ccls	14673	<u>L1</u>

WEST

Generate Collection

Search Results - Record(s) 1 through 2 of 2 returned.☐ 1. Document ID: US 6263313 B1

L10: Entry 1 of 2

File: USPT

Jul 17, 2001

US-PAT-NO: 6263313

DOCUMENT-IDENTIFIER: US 6263313 B1

TITLE: Method and apparatus to create encoded digital content

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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☐ 2. Document ID: US 5805699 A

L10: Entry 2 of 2

File: USPT

Sep 8, 1998

US-PAT-NO: 5805699

DOCUMENT-IDENTIFIER: US 5805699 A

TITLE: Software copying system

Full	Title	Citation	Front	Review	Classification	Date	Reference	Claims	KWIC	Draw Desc	Image
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Generate Collection

Terms	Documents
16 and key	2

Display

10

Documents, starting with Document:

2

Display Format:

TI

Change Format